the legs. In FIG. **30**, these legs **3001** to **3004** are half wave routings into a 4-way resistor located in the center of each. In FIG. **6**, the half wave routing is not needed as the resistor is able to short the coaxial lines directly at locations **620**, **630**, **640** and **650**. Each microstructural element **3001**, **3002**, **3003** and **3004** may include a star resistor equivalent to **690** in FIG. **6** located in a central region similar to the resistor mounting regions of FIG. **25**B or **25**D. The resistors may be formed monolithically during the formation of the microstructure **3000** or microstructure **3000** may be formed in multiple pieces that are divided at a lower surface of **3001**, **3002**, **3003**, and **3004** wherein the resistors are mounted in these parts and then the parts are assembled into a stack and bonded using any suitable methods such as solder, conductive epoxy, gold fusion bonding, anisotropic conductive adhesive or similar. This example 4-stage 4-way Wilkinson power divider/combiner includes 4 segments/sections. As illustrated, these sections are located in each of pillars **3080**, **3081**, **3082** and **3083** of this example embodiment. For example, microstructural elements **3053**, **3043**, **3033** and **3023** in pillar **3083** may include the functionality of respectively leg elements **653**, **643**, **633**, and **623**. The three remaining pillars **3080**, **3081** and **3082** are each constructed with similar elements and include functionality of respectively leg elements in FIG. **6**. For example, microstructural elements in pillar **3081** may include the functionality of respectively leg elements **621**, **631**, **641** and **651**. By symmetry the relationships in the other legs should be obvious to one skilled in the art. According to some embodiments, signals may meander up structure **3000** in many ways, including through portions of structures **3001**, **3002**, **3003**, and/or **3004** as well as through portions of the outside pillars. In FIG. **30** quarter wave segments are located between **3023** and **3033**, between **3033** and **3043**, between **3043** and **3053**, and between **3053** and central output or input port **3050**.

These correspond to the quarter wave segments **623**, **633**, **643** and **653** in FIG. **6**. In FIG. **30** sections **3001**, **3002**, **3003** and **3004** may have different configuration and different resistor values and may be determined through software simulation such as through Ansoft's Designer™, HFSS™ or Agilent's ADS™. While lambda/2 segments are shown in FIG. **30**, alternative resistor mounting methods which do not require lambda/2 segments, such as shown in FIG. **3**B could be used with alternative routings to produce a multi-stage stacked structure similar to FIG. **30**.

FIG. **31** illustrates a transition structure **3100** in accordance with one aspect of embodiments. Transition structure **3100**, as illustrated, is a transition/interconnection that switches a three-dimensional coaxial microstructure to an RF line, for example, a coplanar waveguide line (CPW) or microstrip line. This transition may be optimized using software such as Ansoft's HFSS® to reduce the transition loss. Inner conductor **3130** makes a downward Z-transition from a three-dimensional coaxial to connect to the signal line of the RF line using foot **3172**. Grounding microstructure feet **3171** and **3173** connect to the ground of an RF line. A dielectric material may be located between the center conductor feet **3172** and center conductor **3130** as is shown at **3160** and **3170**. The dielectric is located between outer conductor foot **3171** and **3173** and outer conductor ground **3150** and is shown as **3170**. The dielectric may be configured to stop solder and conductive epoxy upward flow and/or provide mechanical stability of the center conductor. A second dielectric **3160** may be located at the top of the center conductor **3130** to minimize the upward and lateral motion.

As presented herein, an n-way three dimensional microstructural divider/combiner may be manufactured in a process, such as the PolyStrata® process or other microfabrication technique for creating coaxial quasi-coaxial microstructures. In embodiments, any suitable process may be employed, for example a lamination, pick-and-place, transfer-bonding, deposition and/or electroplating process. Such processes may be illustrated at least at U.S. patent and U.S. patent application Nos. incorporated herein by reference.

According to embodiments, for example, a sequential build process including one or more material integration processes may be employed to form a portion and/or substantially all of an apparatus. In embodiments, a sequential build process may be accomplished through processes including various combinations of: (a) metal material, sacrificial material (e.g., photoresist), insulative material (e.g., dielectric) and/or thermally conductive material deposition processes; (b) surface planarization; (c) photolithography; and/or (d) etching or other layer removal processes. In embodiments, plating techniques may be useful, although other deposition techniques such as physical vapor deposition (PVD) and/or chemical vapor deposition (CVD) techniques may be employed.

According to embodiments, a sequential build process may include disposing a plurality of layers over a substrate. In embodiments, layers may include one or more layers of a dielectric material, one or more layers of a metal material and/or one or more layers of a resist material. In embodiments, a support structure may be formed of dielectric material. In embodiments, a support structure may include an anchoring portion, such as a aperture extending at least partially there-through. In embodiments, a microstructural element, such as a first conductor and/or a second conductor, may be formed of a metal material. In embodiments, one or more layers may be etched by any suitable process, for example wet and/or dry etching processes.

According to embodiments, a metal material may be deposited in an aperture of a microstructural element, affixing one or more microstructural elements together and/or to a support structure. In embodiments, sacrificial material may be removed to form a non-solid volume. In embodiments, a non-solid volume may be filled with dielectric material, and/or insulative material may be disposed between a first microstructural element and a second microstructural element and/or the like.

According to embodiments, for example, any material integration process may be employed to form a part and/or all of an apparatus. In embodiments, for example, transfer bonding, lamination, pick-and-place, deposition transfer (e.g., slurry transfer), and/or electroplating on and/or over a substrate layer, which may be mid-build of a process flow, may be employed. In embodiments, a transfer bonding process may include affixing a first material to a carrier substrate, patterning a material, affixing a patterned material to a substrate, and/or releasing a carrier substrate. In embodiments, a lamination process may include patterning a material before and/or after a material is laminated to a substrate layer and/or any other desired layer. In embodiments, a material may be supported by a support lattice to suspend it before it is laminated, and then it may be laminated to a layer. In embodiments, a material may be selectively dispensed.

The exemplary embodiments described herein in the context of a coaxial transmission line for electromagnetic energy may find application, for example, in the telecommunications industry in radar systems and/or in microwave and millimeter-wave devices. In embodiments, however, exemplary structures and/or processes may be used in numerous fields for microdevices such as in pressure sensors, rollover sensors;